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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,131	07/25/2001	Shohhei Fujio	JP920000229	2739

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IBM MICROELECTRONICS
INTELLECTUAL PROPERTY LAW
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EXAMINER

CHU, CHRIS C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 12/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/682,131

Applicant(s)

FUJIO ET AL.

Examiner

Chris C. Chu

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on October 6, 2002 has been received and entered in the case.

Claim Objections

2. Claim 4 is objected to because of the following informalities:

In claim 4, line 3, "ground and power leads and bonding pads" should be --ground and power leads, bonding pads--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 ~ 8 and 10 ~ 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hundt.

Regarding claim 1, Hundt discloses in Figs. 3 ~ 5 and column 7, lines 1 ~ 14 a semiconductor integrated circuit device comprising:

- a die (16 in Fig. 5) connected to a ground lead (18f) and a power lead (18e);
- a ground plane (90) connected to the ground lead, the ground plane enclosed within an encapsulating material (32 in Fig. 5);
- an electrically insulating layer (14a) between said die and said ground plane; and
- a decoupling capacitor (52a) having a first end and a second end, the first end connected to the ground lead and the second end connected to the power lead;
- wherein an encapsulating material for encapsulates the die, the ground plane, the electrically insulating layer and the decoupling capacitor.

Regarding claim 2, Hundt discloses in Figs. 3 ~ 5 and column 5, lines 36 ~ 51 said ground plane being adjacent a first plane of a printed circuit board for mounting electronic parts.

Regarding claim 3, Hundt discloses in Figs. 3 ~ 5 said ground plane (90) extending in two dimensions beyond the edges of said die.

Regarding claim 4, Hundt discloses in Figs. 3 ~ 5 an intra-package wiring substrate comprising wirings (104, 74, etc.) for a connecting path between the ground and power leads, [and] bonding pads (102, 72, etc.) of the die (16) being disposed between the die and the ground plane, and the decoupling capacitor (52a) being connected to the ground plane at one end and the power line of the intra-package wiring substrate at the other end.

Regarding claim 5, Hundt discloses in Figs. 3 ~ 5 the portion of the encapsulating material (32) for inserting the power lead (18e) being connected to a power supply bonding pad (72) of the die through a bonding wire (70) at the die-side end, and the first end of the decoupling capacitor (52a) being connected to the ground plane (90) and the second end of the decoupling capacitor being connected to the specified location of said portion for inserting the power lead.

Regarding claim 6, Hundt discloses in Figs. 3 ~ 5 the specified location of the portion for inserting the power lead to which the decoupling capacitor (52a) is connected is the die-side end of the portion for inserting the power lead.

Regarding claim 7, Hundt discloses in Figs. 3 ~ 5 the ground plane (90) being connected to the die-side end of the portion for inserting the power lead into the encapsulating material.

Regarding claim 8, since Hundt does not limit the encapsulating and the layer between the die and the ground plane (or a substrate) to any particular or specific material, his/her disclosure encompasses all well known materials for the encapsulating and the layer between the die and the ground plane (or the substrate) including the layer between the die and the ground plane (or the substrate) having a lower dielectric constant than the dielectric constant of the encapsulating material.

Regarding claim 10, Hundt discloses an electronic apparatus or control apparatus comprising a semiconductor integrated circuit device according to Claim 1. See reject of claim 1.

Regarding claim 11, Hundt discloses in column 5, lines 52 ~ 57 the electrically insulating layer comprising one of air, encapsulating material or bonding material.

Regarding claim 12, Hundt discloses in column 6, lines 45 ~ 55 the ground plane comprising a layer of metal.

Regarding claim 13, Hundt discloses in column 6, lines 45 ~ 55 the layer of metal comprising copper.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hundt in view of Hernandez et al.

Hundt discloses the claimed invention except for an external decoupling capacitor provided on the printed circuit electrically connected in parallel with the decoupling capacitor of the semiconductor integrated circuit device. However, Hernandez et al. discloses an external decoupling capacitor (60) provided on the printed circuit (68 and see Fig. 10B) electrically connected in parallel with the decoupling capacitor of the semiconductor integrated circuit device. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Hundt by including an external decoupling capacitor provided on the printed circuit electrically connected in parallel with the decoupling capacitor of the semiconductor integrated circuit device as taught by Hernandez et al. The ordinary artisan would have been motivated to modify Hundt in the manner described above for at least the purpose of lower decoupling loop (read column 2, lines 68).

Response to Arguments

7. Applicant's argument with respect to claim 1 has been considered but is moot in view of the new ground(s) of rejection.

Conclusion

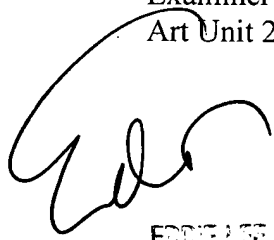
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815

c.c.
December 23, 2002



EDDIE LEE
SUPERVISOR
TECHNOLOGY UNIT 2815